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(54) Title: ALPHA 5 BETA 1 AND ITS ABILITY TO REGULATE THE CELL SURVIVAL PATHWAY

(57) Abstract: The present invention provides for identification of agents that induce growth arrest and survival of cancer cells, which remain dormant in bone marrow, thus preventing their eradication through use of standard chemotherapy or radiation therapy. Basic fibroblast growth factor (FGF-2), a mammary differentiation factor abundant in the bone marrow stroma, induces growth arrest of relatively differentiated breast cancer cells and restricts their survival to fibronectin by upregulating integrin $\alpha 5\beta$ 1. Most of the FGF-2-arrested cells fail to establish optimal ligation to fibronectin and undergo cell death. Cells that do attach to fibronectin, another major constituent of the bone marrow microenvironment, stay alive and growth-arrested for many weeks. Using function-blocking antibodies and peptides, a specific contribution of $\alpha 5\beta 1$-fibronectin interaction in maintaining survival of growth-arrested cells was demonstrated. The present invention thus allows for methods, agents and pharmaceutical compositions that can be used to potentiate the activity of chemotherapy or radiation therapy.